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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,500	02/01/2002	Avi J. Ashkenazi	P3130R1C7	5350
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Ginger R. Dreger Knobbe Martens Olson & Bear Suite 1150 201 California Street San Francisco, CA 94111			EXAMINER CHERNYSHEV, OLGA N	
			ART UNIT 1646	PAPER NUMBER
DATE MAILED: 10/28/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/066,500

Applicant(s)

ASHKENAZI ET AL.

Examiner

Olga N. Chernyshev

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 40-47, 50-53 and 56-59 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 40-47, 50-53 and 56-59 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. Claims 48, 49, 54 and 55 have been cancelled and claims 40-45 and 53 have been amended as requested in the amendment filed on July 30, 2004. Claims 40-47, 50-53 and 56-59 are pending in the instant application.

Claims 40-47, 50-53 and 56-59 are under examination in the instant office action.

2. The Text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Any objection or rejection of record, which is not expressly repeated in this action has been overcome by Applicant's response and withdrawn.

4. Applicant's arguments filed on July 30, 2004 have been fully considered but they are not deemed to be persuasive for the reasons set forth below.

### ***Claim Rejections - 35 USC § 101***

5. Claims 40-47, 50-53 and 56-59 stand rejected under 35 U.S.C. 101 because the claimed invention is drawn to an invention with no apparent or disclosed specific and substantial credible utility for those reasons of record in section 3 of Paper mailed on April 28, 2004. Briefly, the instant application has provided a description of an isolated DNA encoding a protein and the protein encoded thereby. The instant application does not disclose a specific biological role for this protein or its significance to a particular disease, disorder or physiological process, which one would wish to manipulate for a desired clinical effect.

Beginning at page 15 of the Response, Applicant summarizes case law on the utility requirement and refers to Utility Examination Guidelines. Applicant's review of the issue of utility, the case law that has been cited and the holding that is found in that case law is not disputed. The only point of disagreement appears to be the interpretation of what constitutes a specific, substantial and credible utility.

Applicant submits that "the specification provides at least three asserted utilities for the claimed nucleic acids. The first two disclosed utilities are that the claimed nucleic acids encode proteins that induce the expression of c-fos in pericyte cells, and therefore, are useful not only as diagnostic markers for pericyte associated tumors, but also for giving rise to antagonists (*e.g.*, antibodies) that are useful for the therapeutic treatment of pericyte associated tumors" (last paragraph at page 16). Further, "the third asserted utility is that the claimed nucleic acids encode proteins that are useful for stimulating angiogenesis" (bottom at page 16, continuing to page 17). Applicant's arguments have been fully considered but are not deemed to be persuasive for the following reasons.

The first two asserted utilities of the claimed nucleic acids that encode polypeptides as diagnostic markers for pericyte associated tumors and for the treatment of pericyte associated tumors are based on the results of the assay disclosed in the Example 60, which indicated that PRO444 of SEQ ID NO: 9 induced the expression of c-fos in pericyte cells (page 142, Example 60). As fully explained in the previous office action, because the art clearly recognizes that induction of c-fos expression represents a general non-specific first line of cellular response to a variety of stimuli in a variety of cells, one skilled in the art would not attribute the induction of c-fos expression in pericytes by the instant polypeptides as a physiological reaction specifically induced by these particular

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polypeptides. Accordingly, one would reasonably conclude that activation of c-fos could not support the assertion of specific and substantial credible utility of PRO444 “as diagnostic marker[s] for particular types of pericyte-associated tumors”. Furthermore, in view of the lack of evidence that specifically associates the instant PRO444 with any particular type of tumor, including pericyte associated tumors, there appears to be no reasons to conclude that PRO444 polynucleotides could be used as cancer markers.

Applicant argues that “nucleic acids encoding polypeptides capable of inducing c-fos expression have a substantial, specific, and credible use. More specifically, the c-fos gene is well known proto-oncogene that is a major target for signal transduction pathways involved in the regulation of cell growth, differentiation, and transformation” (bottom at page 17, continuing to page 18 of the Response). The Examiner maintains that because activation of c-fos represents a general non-specific cellular response, which is not limited to any particular cell type or particularly associated with a specific physiological function, there appears to be no scientific logic to conclude that the instant PRO444 polypeptides, as inducers of c-fos expression, are involved in tumorigenesis, as asserted in the instant specification. The data presented in the reference cited by Applicant (top at page 18), which indicates that “c-fos deficient cells appear to have intrinsic defect that hinders tumorigenesis”, do not support the assertion that any factor capable to induce c-fos expression is involved in tumorigenesis. The instant specification, as filed, fails to present any evidence or sound scientific reasoning to support a conclusion made by Applicant that “the presence of the claimed nucleic acids in a subject’s tissues or cells (*e.g.*, pericytes) would indicate that the c-fos proto-oncogene is expressing more c-fos

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transcription factor that normal, and it is more likely that not the patient has a malignant tumor” (middle at page 18 of the Response).

Furthermore, the second asserted utility, “the claimed nucleic acids could also be useful in recombinant vectors to express PRO444 polypeptides” (last paragraph at page 18) also appears to be lacking scientific or factual support. Applicant argues that “a skilled artisan would reasonably conclude that a reduction in PRO444 activity would, in turn, minimize the expression of c-fos proto-oncogene, and thus could be used in treatment regiment for a patient suffering from a malignant tumor” (bottom at page 18). As fully explained earlier, there appears to be no evidence of record presented in the instant specification, as filed, that would establish the significance of PRO444 c-fos activation in pericytes with relation to a specific physiological activity or a particular pathological condition, including pericyte associated tumors. Thus, regarding the merit of the argument, the instant specification, as filed, provides no evidence to support a conclusion that “[I]n light of their ability to generate PRO444 antibodies, the claimed nucleic acids possess specific, substantial and credible therapeutic benefits for cancer patients” (top at page 19). One skilled in the art readily appreciates that because the instant specification, as filed, has not linked the disclosed PRO444 with any specific disease state or disorder, including cancer in general or pericyte-associated tumors in particular, there appears to be no scientific basis for concluding that an antibody that binds to PRO444 would be useful for treating these diseases. One skilled in the art would be required to perform significant further research on the instant claimed nucleic acids encoding PRO444 polypeptides in order to identify a specific biological activity of

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PRO444, its significance to a particular disease and, further, to what “use” any information regarding antibodies that bind to PRO444 could be put.

Applicant further submits that “the claimed nucleic acids or the encoded PRO444 polypeptides could be administered to a patient in need of angiogenesis”, which represents the third asserted use of the claimed polypeptides (second paragraph on page 19). This is not persuasive because the instant specification discloses that the claimed PRO444 induces c-fos activation and hypothesizes that because c-fos is capable of inducing growth factors that induce the onset of angiogenesis the claimed polypeptides can be used for stimulating angiogenesis. However, there is no disclosure that the claimed polypeptides are involved in activation of pathways that lead to induction of growth factors that further induce the onset of angiogenesis, or that PRO444 are directly involved in stimulating of angiogenesis, as implied in the Response.

Applicant further argues that “Applicants are not required to recite exact tumor types (e.g., breast, brain) that the claimed inventions can treat or diagnose in order to comply with the PTO’s utility requirements. There are numerous general treatments (e.g., radiation, chemotherapy) and diagnostics available for cancer that are not limited to exact types of cancer, yet have well established specific utility” (last paragraph at page 19). This argument has been fully considered but is not deemed persuasive for the following reasons. A specification can meet the legal requirements of utility and enablement for a new polypeptide as long as the specification discloses at least one credible, specific and substantial asserted utility for the new polypeptide, or a well-established utility for the claimed polypeptide would be immediately obvious to the skilled artisan. In the instant case, in view of total lack of evidence or scientific reasoning to support the assertion that

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the instant PRO444 are specifically associated with cancer in general or with any particular cancer in particular, one skilled in the art would have no reasons to believe that PRO444 could be used as a marker for cancer in general or for any particular type of cancer in particular. Significant further research would have to be conducted to identify diseases or disease states which correlate with activity of the instant PRO444. Therefore, the asserted utility is not applicable to the claimed invention in its currently available form and, consequently, the claimed invention is incomplete and does not meet the requirements of 35 U.S.C. § 101 as being useful.

***Claim Rejections - 35 USC § 112***

6. Claims 40-47, 50-53 and 56-59 stand rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a clear asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

7. Claims 40-44, as amended, stand rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention for those reasons of record in section 5 of Paper mailed on April 28, 2004.

Applicant traverses the rejection on the premises that “[a]s disclosed in detail in Example 60 of the specification [...], nucleic acids encoding polypeptides having the ability to induce c-fos proto-oncogene expression, were clearly possessed by Applicants



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at the time of filing the present application” (top at page 22 of the Response). This argument has been fully considered but is not persuasive for the following reasons.

Claims 40-44, as amended, are directed to isolated nucleic acids having at least 80%, 85%, 90%, 95% or 99% sequence identity with a nucleic acid of SEQ ID NO: 8 or to a nucleic acid encoding a polypeptide of SEQ ID NO: 9, wherein said isolated nucleic acid encodes a polypeptide having the ability to induce c-fos expression. As fully explained in the previous office action of record, the instant claims are drawn to a genus of polynucleotides that is defined by sequence identity and no disclosed correlation between any particular conserved structure and recited functional limitation.

Whereas one can readily produce any polynucleotides, which is at least 80%, 85%, 90%, 95% or 99% identical to SEQ ID NO: 8, one would not know, which of those polynucleotides would encode polypeptides which are capable of inducing c-fos expression.

The instant specification only describes a polynucleotide having the nucleic acid sequence of SEQ ID NO: 8 and fails to teach or describe any other polynucleotide which lacks the nucleic acid sequence of SEQ ID NO: 8 and has any relevance to the disclosed PRO444.

Thus, based on the information provided in the instant specification, one skilled in the art would not be able to envision the detailed chemical structure of the encompassed genus of polynucleotides. Therefore, it can be concluded that the only isolated polynucleotide comprising the nucleic acid sequence set forth in SEQ ID NO: 8, but not the full breadth of the claim meets the written description provision of 35 U.S.C. §112, first paragraph.

***Conclusion***

8. No claim is allowed.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga N. Chernyshev whose telephone number is (571) 272-0870. The examiner can normally be reached on 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brenda G. Brumback can be reached on (571) 272-0961. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Certain papers related to this application may be submitted to Technology Center 1600 by facsimile transmission. Papers should be faxed to Technology Center 1600 via

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the PTO Fax center located in Crystal Mall 1 (CM1). The faxing of such papers must conform with the notices published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 C.F.R. § 1.6(d)). NOTE: If Applicant *does* submit a paper by fax, the original signed copy should be retained by Applicant or Applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED so as to avoid the processing of duplicate papers.

Official papers filed by fax should be directed to (703) 872-9306. If this number is out of service, please call the Group receptionist for an alternative number. Faxed draft or informal communications with the examiner should be directed to (571) 273-0870.

Official papers should NOT be faxed to (571) 273-0870.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Olga N. Chernyshev, Ph.D.

  
**OLGA N. CHERNYSHEV, PH.D.**  
**PATENT EXAMINER**